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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,812	01/10/2002	Satoshi Seo	07977-292001-US5444	7853
26171	7590	06/15/2004	EXAMINER	
FISH & RICHARDSON P.C. 1425 K STREET, N.W. 11TH FLOOR WASHINGTON, DC 20005-3500			KRISHNAN, SUMATI	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N . 10/043,812	Applicant(s) SEO ET AL.	
	Examiner Sumati Krishnan	Art Unit 2879	<i>AW</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 60-80 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 60-80 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION***Response to Amendments***

Applicant's arguments filed 3-29-04 have been fully considered but they are not persuasive. In claim 1, applicant adds the limitation "a blocking compound capable of stopping the movement of holes or electrons and at least one of" and argues that Shi does not include a blocking compound in the invention thereof. However, this added limitation does *not* necessitate the inclusion of a blocking compound in the organic compound film. What this limitation does necessitate is the inclusion of the blocking compound in the group from which two compounds are to be selected from, but since that group contains the blocking compound and *at least one* of the other compounds listed, the selected compounds could very well be two other than the blocking compound, i.e. the hole and electron transporting compound as disclosed by Shi.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 60-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al (US 6130001).

Regarding claim 1, Shi discloses a light emitting device comprising an organic light emitting element comprising an anode, a cathode and an organic compound film sandwiched between the anode and the cathode, wherein the organic compound film

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comprises at least two compounds selected from the group comprising a hole and electron transporting component, which change concentrations continuously throughout the region. The concentration of the electron transporting increase in the direction from anode to cathode, and the concentration of the hole transporting decrease in the direction from the anode to the cathode. See abstract. The two materials disclosed by Shi are capable of undergoing vacuum evaporation, and the organic compound film comprises a region in which the two compounds are mixed (see abstract).

Shi doesn't specifically disclose the electric current versus electric voltage of the organic light emitting elements showing a rectification property. However, rectification is an innate property of the pn junction characteristics of the organic element having the organic compound layer with a mixed region of a hole and electron transporting material. Therefore, it is obvious to assume that the current vs. voltage characteristics of Shi's light emitting device would demonstrate rectification.

Regarding claims 61 and 65, Shi discloses a light emitting device comprising an organic light emitting element comprising an anode, a cathode and an organic compound film sandwiched between the anode and the cathode, wherein the organic compound film comprises at least two compounds selected from the group comprising either a hole injecting and transporting material, or a electron injecting and transporting material. The compounds capable of performing hole injecting and hole transporting are the same. Similarly, the compounds for performing electron injecting and electron transporting are the same. Shi discloses a hole transporting/injecting material comprising the organic film, as well as an electron injecting/transporting material comprising the organic film. The claims do not specify that the compounds for hole injecting/transporting are to be

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different, nor that the compounds for electron injecting/transporting are to be different. See Shi columns 3-7 for discussion of appropriate compounds. The two materials disclosed by Shi are capable of undergoing vacuum evaporation, and the organic compound film comprises a region in which the two compounds are mixed (see abstract).

Shi doesn't specifically disclose the electric current versus electric voltage of the organic light emitting elements showing a rectification property. However, rectification is an innate property of the pn junction characteristics of the organic element having the organic compound layer with a mixed region of a hole and electron transporting material. Therefore, it is obvious to assume that the current vs. voltage characteristics of Shi's light emitting device would demonstrate rectification.

Regarding claims 2-3, 62-63 and 66-67, Shi discloses the hosts being the electron and hole transport/injecting regions and the guest being the fluorescent powder.

Regarding claims 60,64 and 68, Shi discloses the light emitting device included with a display, see column 1 lines 40-45.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 69-80 are rejected under 35 U.S.C. 102(e) as being anticipated by Shi et al (US 6130001).

Regarding claim 69, Shi discloses a light emitting device comprising an organic light emitting element comprising an anode, a cathode and an organic compound film sandwiched between the anode and the cathode, wherein the organic compound film comprises at least two compounds selected from the group comprising a hole and electron transporting component, which change concentrations continuously throughout the region. The concentration of the electron transporting increase in the direction from anode to cathode, and the concentration of the hole transporting decrease in the direction from the anode to the cathode. See abstract. The two materials disclosed by Shi are capable of undergoing vacuum evaporation, and the organic compound film comprises a region in which the two compounds are mixed (see abstract).

Regarding claims 73 and 77, Shi discloses a light emitting device comprising an organic light emitting element comprising an anode, a cathode and an organic compound film sandwiched between the anode and the cathode, wherein the organic compound film comprises at least two compounds selected from the group comprising either a hole injecting and transporting material, or a electron injecting and transporting material. The compounds capable of performing hole injecting and hole transporting are the same. Similarly, the compounds for performing electron injecting and electron transporting are the same. Shi discloses a hole transporting/injecting material comprising the organic film, as well as an electron injecting/transporting material comprising the organic film. The claims do not specify that the compounds for hole injecting/transporting are to be different, nor that the compounds for electron injecting/transporting are to be different.

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See Shi columns 3-7 for discussion of appropriate compounds. The two materials disclosed by Shi are capable of undergoing vacuum evaporation, and the organic compound film comprises a region in which the two compounds are mixed (see abstract).

Regarding claims 70-71 and 74-75 and 78-79, Shi discloses the hosts being the electron and hole transport/injecting regions and the guest being the fluorescent powder.

Regarding claims 72,76 and 80, Shi discloses the light emitting device included with a display, see column 1 lines 40-45.

Conclusion

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sumati Krishnan whose telephone number is 571-272-2372. The examiner can normally be reached on 9:00 am - 5:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


SK


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